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FILE 'REGISTRY' ENTERED AT 16:17:45 ON 23 MAY 2008  
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STRUCTURE FILE UPDATES: 22 MAY 2008 HIGHEST RN 1021988-26-0  
DICTIONARY FILE UPDATES: 22 MAY 2008 HIGHEST RN 1021988-26-0

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(FILE 'HOME' ENTERED AT 16:02:26 ON 23 MAY 2008)

FILE 'HCAPLUS' ENTERED AT 16:02:35 ON 23 MAY 2008

E US20060166029/PN

L1 1 S E3  
SEL RN

FILE 'REGISTRY' ENTERED AT 16:03:09 ON 23 MAY 2008

L2 26 S E1-26

FILE 'LREGISTRY' ENTERED AT 16:06:22 ON 23 MAY 2008

L3 0 S (FE(L)CR(L)AL(L)SI(L)LA(L)CE(L)P(L)CU)/ELS

FILE 'REGISTRY' ENTERED AT 16:08:15 ON 23 MAY 2008

L4 56518 S (FE(L)CR(L)AL)/ELS AND AYS/CI

L5 26 S L2 AND L4

L6 41801 S L4 (L) SI/ELS

L7 41801 S L4 AND SI/ELS

L8 17 S L2 AND L7

L9 567 S L7 AND LA/ELS

L10 3 S L2 AND L9

L11 125 S L9 AND CE/ELS

L12 1 S L2 AND L11

L13 1 S L11 AND P/ELS

L14 1 S L13 AND (CU OR TI OR NB)/ELS

L15 95 S L11 AND (CU OR TI OR NB)/ELS

L16 32 S L15 AND CU/ELS

L17 17 S L16 AND TI/ELS

L18 15 S L17 AND NB/ELS

L19 2 S (L13 OR L18) AND MG/ELS

L20 1 S L13 AND L19

5/23/2008

10/535,602

2

L21 1 S L19 NOT L20  
L22 13 S L18 NOT L20-21

FILE 'HCAPLUS' ENTERED AT 16:16:54 ON 23 MAY 2008

L23 1 S L20  
L24 1 S L21  
L25 13 S L22

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FILE 'HCAPLUS' ENTERED AT 16:17:47 ON 23 MAY 2008

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FILE COVERS 1907 - 23 May 2008 VOL 148 ISS 22

FILE LAST UPDATED: 22 May 2008 (20080522/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=&gt; d l23 ibib abs hitstr hitind

L23 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:1153052 HCAPLUS Full-text

DOCUMENT NUMBER: 143:425118

TITLE: Steel slab with small number of surface cracks

INVENTOR(S): Wakao, Masamitsu

PATENT ASSIGNEE(S): Nippon Steel Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2005298909	A	20051027	JP 2004-117474	20040413
PRIORITY APPLN. INFO.:			JP 2004-117474	20040413

AB A steel slab with a small number of surface cracks contains C 0.001-1.5, Mn 0.01-3.0, Si 0.005-4.0, S 0.001-0.05, N 0.0020-0.02, O 0.0005-0.0050, Al 0.006-0.1,  $\geq 1$  form Nb 0.04-0.1, Ti 0.004-0.1, and V 0.01-0.1 and optionally  $\geq 1$  of Ni, Cu, Cr, Mo, B, Zr, Mg, Ca at  $\leq 1.0$ . The steel also contains P 0.05-0.5 and Ce and/or La 0.005-0.5%. The average value of  $\gamma$  grain diameter in a 5-35 mm range from the slab surface is  $\leq 3$  mm.

IT 868054-58-4  
 RL: PRP (Properties); TEM (Technical or engineered material use);  
 USES (Uses)  
 (steel slab with small number of surface cracks)

RN 868054-58-4 HCAPLUS

CN Iron alloy, base, Fe 90-100, Si 0-4, Mn 0-3, C 0-1.5, B 0-1, Ca 0-1, Cr 0-1, Cu 0-1, Mg 0-1, Mo 0-1, Ni 0-1, Zr 0-1, Ce 0-0.5, La 0-0.5, P 0-0.5, Al 0-0.1, Nb 0-0.1, Ti 0-0.1, V 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Fe	90 - 100	7439-89-6
Si	0 - 4	7440-21-3
Mn	0 - 3	7439-96-5
C	0 - 1.5	7440-44-0
B	0 - 1	7440-42-8
Ca	0 - 1	7440-70-2
Cr	0 - 1	7440-47-3
Cu	0 - 1	7440-50-8
Mg	0 - 1	7439-95-4
Mo	0 - 1	7439-98-7
Ni	0 - 1	7440-02-0
Zr	0 - 1	7440-67-7
Ce	0 - 0.5	7440-45-1
La	0 - 0.5	7439-91-0
P	0 - 0.5	7723-14-0
Al	0 - 0.1	7429-90-5
Nb	0 - 0.1	7440-03-1
Ti	0 - 0.1	7440-32-6
V	0 - 0.1	7440-62-2

IC ICM C22C038-00  
 ICS B22D011-00; B22D011-108; C22C038-58

CC 55-3 (Ferrous Metals and Alloys)

IT 12716-99-3, properties 868054-45-9, properties 868054-46-0,  
 properties 868054-47-1, properties 868054-50-6, properties  
 868054-51-7 868054-52-8, properties 868054-53-9 868054-54-0  
 868054-57-3 868054-58-4  
 RL: PRP (Properties); TEM (Technical or engineered material use);  
 USES (Uses)  
 (steel slab with small number of surface cracks)

=> d l24 ibib abs hitstr hitind

L24 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2004:453407 HCAPLUS Full-text  
 DOCUMENT NUMBER: 141:10219  
 TITLE: High-Al stainless steel plate and double-layered  
 plate, process for producing the same, a  
 honeycomb structure therefrom and process for  
 producing the honeycomb structure

5/23/2008

10/535,602

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INVENTOR(S): Inaguma, Tooru; Konya, Shogo; Sakamoto, Hiroaki;  
 Tamura, Motonori  
 PATENT ASSIGNEE(S): Nippon Steel Corporation, Japan  
 SOURCE: PCT Int. Appl., 86 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004046406	A1	20040603	WO 2003-JP14832	20031120
W: US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
JP 2004169110	A	20040617	JP 2002-336048	20021120
JP 2004169111	A	20040617	JP 2002-336049	20021120
JP 3953944	B2	20070808		
JP 2004167373	A	20040617	JP 2002-336050	20021120
JP 4080304	B2	20080423		
JP 2004169112	A	20040617	JP 2002-336051	20021120
JP 2004169113	A	20040617	JP 2002-336052	20021120
JP 2004169114	A	20040617	JP 2002-336053	20021120
JP 2004176086	A	20040624	JP 2002-340969	20021125
JP 4083548	B2	20080430		
EP 1580288	A1	20050928	EP 2003-774096	20031120
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK				
US 20060166029	A1	20060727	US 2005-535602	20051212
US 20080069717	A1	20080320	US 2007-981933	20071031
PRIORITY APPLN. INFO.:			JP 2002-336048	A
			JP 2002-336049	A

20

JP 2002-336050 A  
200211  
20

JP 2002-336051 A  
200211  
20

JP 2002-336052 A  
200211  
20

JP 2002-336053 A  
200211  
20

JP 2002-340969 A  
200211  
25

WO 2003-JP14832 W  
200311  
20

US 2005-535602 A3  
200512  
12

AB An Fe-Cr-Al stainless steel plate with high Al content exceeding 6.5% and double-layered plate thereof; a honeycomb structure produced from the stainless steel plate or double-layered plate; and a process for producing the stainless steel plate and double-layered plate. In particular, an Fe-Cr-Al stainless steel plate of high Al content characterized by comprising, in terms of mass%, 10 to 30% of Cr and more than 6.5 to 15% of Al, and high-Al double-layered plate thereof. Preferably, further, one or both of 0.02 to 0.1% of Ti and 0.02 to 0.3% of Nb are contained and simultaneously 0.01 to 0.1% of La, 0.01 to 0.1% of Ce and 0.01 to 0.05% of P are contained therein. Also preferably, further, 0.01 to 1.0 mass% of Cu is contained. Still also preferably, further, 0.001 to 0.1 mass% of Mg is contained. Furthermore, there is provided a honeycomb structure produced from this Fe-Cr-Al stainless steel plate and suitable for catalyst supports.

IT 695231-93-7

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(high-Al stainless steel plate and double-layered plate, process for producing the same, a honeycomb structure therefrom and process for producing the honeycomb structure)

RN 695231-93-7 HCAPLUS

CN Iron alloy, base, Fe 52-83, Cr 10-30, Al 6.5-15, Si 0.1-1, Cu 0-1, Mn 0-0.5, Nb 0-0.3, Ce 0-0.1, La 0-0.1, Mg 0-0.1, Ti 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	52 - 83	7439-89-6
Cr	10 - 30	7440-47-3

Al	6.5	-	15	7429-90-5
Si	0.1	-	1	7440-21-3
Cu	0	-	1	7440-50-8
Mn	0	-	0.5	7439-96-5
Nb	0	-	0.3	7440-03-1
Ce	0	-	0.1	7440-45-1
La	0	-	0.1	7439-91-0
Mg	0	-	0.1	7439-95-4
Ti	0	-	0.1	7440-32-6

IC ICM C22C038-00

ICS C22C038-20; C22C038-26; B01D053-94; B01J035-04

CC 55-3 (Ferrous Metals and Alloys)

IT	695231-68-6	695231-69-7	695231-70-0	695231-71-1	695231-72-2
	695231-73-3	695231-74-4	695231-75-5	695231-76-6	695231-77-7
	695231-78-8	695231-79-9	695231-80-2	695231-81-3	695231-82-4
	695231-83-5	695231-84-6	695231-85-7	695231-86-8	695231-87-9
	695231-88-0	695231-89-1	695231-90-4	695231-91-5	695231-92-6
	695231-93-7				

RL: PEP (Physical, engineering or chemical process); PRP

(Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(high-Al stainless steel plate and double-layered plate, process for producing the same, a honeycomb structure therefrom and process for producing the honeycomb structure)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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L25 ANSWER 1 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2007:838986 HCAPLUS Full-text

DOCUMENT NUMBER: 147:216528

TITLE: Seawater corrosion resistant steel for welded structure and method for corrosion prevention of ballast tank for ship

INVENTOR(S): Usami, Akira; Nagasawa, Makoto; Kato, Kenji

PATENT ASSIGNEE(S): Nippon Steel Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 20pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2007191730	A	20070802	JP 2006-8247	20060117
PRIORITY APPLN. INFO.:			JP 2006-8247	20060117

AB The base steel comprises C 0.03-0.2, Si 0.01-2.5, Mn 0.1-2.0, P ≤0.03, S ≤0.03, Al 0.01-0.3, at least one of Cu 0.01-2.0, Cr 0.01-3.5, Ni 0.01-5.5, Mo 0.01-2.5, W 0.01-2.5, Sb 0.01-0.3, Sn 0.01-0.3, Se 0.01-0.3, and Pb 0.01-0.3

weight%, and balance Fe and has a metal-base coating with thickness 0.5-500  $\mu\text{m}$ . The coating mainly comprises a metal with immersion potential in seawater lower than that of the base steel. Optionally the base steel contains Nb, V, Ti, Ta, Zr, B, Mg, Ca, Y, La, and/or Ce. The coating may be a hot-dip coating or a thermal spray coating of Zn, Zn alloy, Al, or Al alloy or a Zn-rich primer coating. The ballast tank is made of the steel. Preferably cathodic protection method is applied to the ballast tank. The steel and its ballast tank have excellent corrosion resistance in seawater.

IT 945038-46-0

RL: TEM (Technical or engineered material use); USES (Uses)  
(base steel; seawater corrosion resistant steel for ship ballast tank)

RN 945038-46-0 HCAPLUS

CN Iron alloy, base, Fe 76-100, Ni 0-5.5, Cr 0-3.5, Mo 0-2.5, Si 0-2.5, W 0-2.5, Mn 0.1-2, Cu 0-2, Ta 0-0.5, V 0-0.5, Zr 0-0.5, Al 0-0.3, Pb 0-0.3, Sb 0-0.3, Se 0-0.3, Sn 0-0.3, C 0-0.2, Nb 0-0.2, Ti 0-0.2, Ce 0-0.1, La 0-0.1, Y 0-0.1 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CC 55-10 (Ferrous Metals and Alloys)

Section cross-reference(s): 56

IT 12709-12-5, uses 12762-79-7, uses 64513-85-5, uses 69075-13-4, uses 74279-13-3, uses 75043-57-1, uses 79121-67-8, uses 79373-82-3, uses 117220-23-2, uses 118393-99-0, uses 194293-96-4, uses 214463-63-5, uses 944541-94-0, uses 944541-95-1, uses 944541-96-2 944541-97-3 944542-00-1, uses 944542-01-2, uses 944542-02-3, uses 944542-04-5, uses 944542-06-7, uses 944542-07-8, uses 944542-09-0, uses 944542-12-5, uses 944542-13-6 944542-15-8 945038-46-0

RL: TEM (Technical or engineered material use); USES (Uses)  
(base steel; seawater corrosion resistant steel for ship ballast tank)

L25 ANSWER 2 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2007:323205 HCAPLUS Full-text

DOCUMENT NUMBER: 146:341846

TITLE: Anticorrosive welded joint for steel and its joint structure

INVENTOR(S): Sakashita, Shinji; Hisamoto, Atsushi; Yamashita, Toru

PATENT ASSIGNEE(S): Kobe Steel, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 52pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 2007069265	A	20070322	JP 2006-216083	20060808
PRIORITY APPLN. INFO.:			JP 2005-229982	A 20050808

AB The anticorrosive welded joint for combining base steel materials is characterized in that a content of component for forming an anticorrosive film

in the weld metal (CA; weight%) and that in the base materials (CB; weight%) satisfy the relationship of  $0.30 \leq CA/CB \leq 3.0$ . The components for forming the anticorrosive film include Co and Mg. The welded joint structures are useful for ships, petroleum tanks, etc.

IT 929211-63-2

RL: TEM (Technical or engineered material use); USES (Uses)

(base steel; anticorrosive welded steel joints for ships and petroleum tanks)

RN 929211-63-2 HCAPLUS

CN Iron alloy, base, Fe 66-100, Co 0-5, Cr 0-5, Cu 0-5, Mo 0-5, Ni 0-5, Mn 0-2, Si 0-2, As 0-0.5, Bi 0-0.5, Nb 0-0.5, Sb 0-0.5, Se 0-0.5, Sn 0-0.5, Te 0-0.5, V 0-0.5, C 0-0.3, Ce 0-0.2, La 0-0.2, Ti 0-0.2, Al 0-0.1 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CC 55-9 (Ferrous Metals and Alloys)

IT 56293-71-1, uses 56668-21-4, uses 66161-73-7, uses  
 249298-12-2, uses 254431-05-5, uses 929080-82-0, uses  
 929080-83-1, uses 929080-84-2, uses 929080-85-3, uses  
 929080-86-4 929080-87-5, uses 929080-88-6, uses 929080-89-7,  
 uses 929080-90-0, uses 929080-91-1, uses 929080-93-3, uses  
 929080-94-4, uses 929080-95-5, uses 929080-96-6, uses  
 929080-97-7, uses 929080-98-8, uses 929080-99-9, uses  
 929081-00-5 929081-01-6, uses 929081-03-8 929081-06-1, uses  
 929081-09-4, uses 929081-10-7 929081-11-8, uses 929081-12-9,  
 uses 929081-51-6 929081-56-1 929081-58-3 929211-63-2  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (base steel; anticorrosive welded steel joints for ships and petroleum tanks)

L25 ANSWER 3 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:467968 HCAPLUS Full-text

DOCUMENT NUMBER: 143:29987

TITLE: High-tensile steel showing high toughness at welding heat affected zone and its manufacture

INVENTOR(S): Hasegawa, Taishi

PATENT ASSIGNEE(S): Nippon Steel Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 2005139509	A	20050602	JP 2003-376820	20031106
JP 4012497	B2	20071121		
PRIORITY APPLN. INFO.:			JP 2003-376820	20031106

AB The claimed steel contains C 0.001-0.05, Si 0.01-0.50, Mn 0.10-3.0, W 0.10-1.0, P  $\leq 0.03$ , S  $\leq 0.02$ , and O  $\leq 0.01$  weight% and satisfies W precipitation amount (to added W amount)  $\leq 1\%$  and  $\leq 10\%$  at  $\geq 4\mu\text{m}$  point heat affected zone (HAZ) and at base metal, resp., and LP value  $\leq 2.5$  for suppressed precipitation of W-



containing Laves phase to give tensile strength  $\geq 550$  MPa; where LP = 3Si + W + 2Cr + 0.5Mo (the element symbols indicate their percent contents). Optionally, the steel contains (1) Nb 0.005-0.1, V 0.005-0.3, Ti 0.005-0.1, Zr 0.005-0.1, Mo 0.01-1.0, (2) Ni 0.01-5.0, Cu 0.01-1.0, Co 0.01-2.0, Cr 0.10-1.0 B 0.0003-0.005, (3) Ca 0.0003-0.005, Mg 0.0003-0.005, Ba 0.0003-0.005, Y 0.0005-0.10, Ce 0.0005-0.10, La 0.0005-0.10, and/or (4) Al 0.002-0.20, Ta 0.002-0.20, Hf 0.002-0.20 weight%. The steel is manufactured by temperature keeping at 400-700° for  $\leq 30$  h in cooling process after hot working or heat treatment.

IT 853014-96-7

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(cooling in manufacture of high-tensile steel containing tungsten for toughness at welding heat affected zone)

RN 853014-96-7 HCAPLUS

CN Iron alloy, base, Fe 84-100, Ni 0-5, Mn 0.1-3, Co 0-2, W 0.1-1, Cr 0-1, Cu 0-1, Mo 0-1, Si 0-0.5, V 0-0.3, Al 0-0.2, Hf 0-0.2, Ta 0-0.2, Ce 0-0.1, La 0-0.1, Nb 0-0.1, Ti 0-0.1, Y 0-0.1, Zr 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	84 - 100	7439-89-6
Ni	0 - 5	7440-02-0
Mn	0.1 - 3	7439-96-5
Co	0 - 2	7440-48-4
W	0.1 - 1	7440-33-7
Cr	0 - 1	7440-47-3
Cu	0 - 1	7440-50-8
Mo	0 - 1	7439-98-7
Si	0 - 0.5	7440-21-3
V	0 - 0.3	7440-62-2
Al	0 - 0.2	7429-90-5
Hf	0 - 0.2	7440-58-6
Ta	0 - 0.2	7440-25-7
Ce	0 - 0.1	7440-45-1
La	0 - 0.1	7439-91-0
Nb	0 - 0.1	7440-03-1
Ti	0 - 0.1	7440-32-6
Y	0 - 0.1	7440-65-5
Zr	0 - 0.1	7440-67-7

IC ICM C22C038-00

ICS B21B003-00; C21D008-02; C22C038-22; C22C038-58

CC 55-5 (Ferrous Metals and Alloys)

IT 852509-78-5, processes 852509-79-6, processes 852509-80-9, processes 852509-81-0, processes 852509-82-1, processes 852509-83-2, processes 852509-84-3, processes 852509-85-4, processes 852509-86-5, processes 852509-87-6, processes 852509-88-7, processes 852509-89-8, processes 852509-90-1, processes 852509-91-2, processes 852509-92-3 852509-93-4, processes 852509-94-5 852509-95-6, processes 852509-96-7, processes 852509-97-8 852509-98-9 852509-99-0 852510-00-0, processes 852510-01-1, processes 852510-02-2, processes 852510-03-3, processes 852510-04-4, processes 852510-05-5, processes 852510-06-6, processes 852510-07-7, processes 852510-08-8, processes 852510-09-9, processes 852510-10-2, processes 852510-11-3, processes 852510-12-4, processes 852510-13-5, processes 852510-14-6, processes 852510-15-7,

processes 852510-16-8, processes 852510-17-9 852510-18-0  
 852510-19-1, processes 852510-20-4, processes 852510-21-5,  
 processes 852510-22-6, processes 853814-96-7

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(cooling in manufacture of high-tensile steel containing tungsten for toughness at welding heat affected zone)

L25 ANSWER 4 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:9611 HCAPLUS Full-text

DOCUMENT NUMBER: 142:98070

TITLE: Manufacture of thick steel sheet having low material anisotropy and dispersion

INVENTOR(S): Hasegawa, Toshinaga; Minagawa, Masaki; Shirahata, Hiroyuki

PATENT ASSIGNEE(S): Nippon Steel Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2005002372	A	20050106	JP 2003-164431	20030609
PRIORITY APPLN. INFO.:			JP 2003-164431	20030609

AB The title sheet is manufactured from a steel slab containing C 0.02-0.3, Si 0.01-2, Mn 0.1-2, Al 0.001-0.1, N 0.001-0.01, P ≤0.02, S ≤0.01, and austenite recrystn. inhibitor and strength improver selected from Cu 0.01-1.5, Mo 0.01-2, W 0.01-2, V 0.005-0.5, Nb 0.003-0.2, Ta 0.005-0.2, Zr 0.003-0.1, and B 0.0002-0.005 weight% by (1) heating at 1000-1300°, (2) rolling at austenite nonrecrystn. area to partial recrystn. area for total draft 30-90% to generate austenite recrystn. rate 0-60% by finish rolling, and then (3) keeping at ≥Ar3 point and heating at ≥Ac3 point and ≤950° for 10-1000 s. The steel sheet may further contain (i) Ni 0.01-6, Cr 0.01-2, and/or Ti 0.003-0.1 and/or (ii) Mg 0.0001-0.01, Ca 0.0005-0.01, Y 0.001-0.1, La 0.005-0.1, and/or Ce 0.005-0.1 weight%. The resulting sheet is especially suitable for marine construction, ships, bridges, welded linepipes, etc.

IT 817199-24-9

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(hot rolling of thick steel sheet for low material anisotropy and dispersion)

RN 817199-24-9 HCAPLUS

CN Iron alloy, base, Fe 83-100, Ni 0-6, Mn 0.1-2, Cr 0-2, Mo 0-2, Si 0-2, Cu 0-1.5, V 0-0.5, C 0-0.3, Nb 0-0.2, Ta 0-0.2, Al 0-0.1, Ce 0-0.1, La 0-0.1, Ti 0-0.1, Y 0-0.1, Zr 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
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=====+=====+=====
Fe      83    - 100      7439-89-6
Ni       0    -   6      7440-02-0
Mn      0.1   -   2      7439-96-5
Cr       0    -   2      7440-47-3
Mo       0    -   2      7439-98-7
Si       0    -   2      7440-21-3
Cu       0    - 1.5      7440-50-8
V        0    - 0.5      7440-62-2
C        0    - 0.3      7440-44-0
Nb       0    - 0.2      7440-03-1
Ta       0    - 0.2      7440-25-7
Al       0    - 0.1      7429-90-5
Ce       0    - 0.1      7440-45-1
La       0    - 0.1      7439-91-0
Ti       0    - 0.1      7440-32-6
Y        0    - 0.1      7440-65-5
Zr       0    - 0.1      7440-67-7

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IC ICM C21D008-02

ICS C22C038-00; C22C038-14; C22C038-58

CC 55-11 (Ferrous Metals and Alloys)

IT 12754-97-1, processes 56293-71-1, processes 64513-85-5,  
processes 125684-13-1, processes 138724-94-4, processes  
177263-05-7, processes 817199-07-8, processes 817199-11-4,  
processes 817199-15-8, processes 817199-21-6, processes  
817199-24-9

RL: PEP (Physical, engineering or chemical process); PYP (Physical  
process); TEM (Technical or engineered material use); PROC  
(Process); USES (Uses)

(hot rolling of thick steel sheet for low material anisotropy and  
dispersion)

L25 ANSWER 5 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:801445 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 141:282013

TITLE: High-Cr cast iron having high resistance to  
heat, corrosion, and wear for incinerator and  
stoker furnace grate

INVENTOR(S): Murakami, Shogo; Nanba, Shigenobu

PATENT ASSIGNEE(S): Kobe Steel, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 2004270002	A	20040930	JP 2003-65187	200303 11

PRIORITY APPLN. INFO.: JP 2003-65187

200303  
11

AB The claimed cast iron contains C >2.0 and ≤4.0, Si 0.5-4, Cr >30 and ≤50, and  
Al 1-8 weight%. Optionally, the cast iron contains (1) Mo and/or W (as total)

≤5 (not containing O), (2) Nb, Ti, V, Zr, Hf, and/or Ta (as total) ≤0.5 (not containing O) and/or N 0.002-0.03, (3) Cu ≤5 (not containing O), Ni ≤10 (not containing O), Mn ≤5 (not containing O), and/or B ≤0.003 (not containing O), and/or (4) Ce, La, Pr, Nd, and/or Y (as total) ≤1 weight%.

IT 760977-35-3

RL: DEV (Device component use); USES (Uses)

(high-Cr cast iron having high resistance to heat, corrosion, and wear for incinerator and stoker furnace)

RN 760977-35-3 HCAPLUS

CN Iron alloy, base, Fe 18-66, Cr 30-40, Ni 0-10, Al 1-8, Cu 0-5, Mn 0-5, Mo 0-5, C 2-4, Si 0.5-4, Ce 0-1, La 0-1, Nd 0-1, Pr 0-1, Y 0-1, Hf 0-0.5, Nb 0-0.5, Ta 0-0.5, Ti 0-0.5, V 0-0.5, Zr 0-0.5 (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IC ICM C22C037-06

ICS C22C037-08; F23G005-00; F23G005-44; F23G005-48

CC 60-5 (Waste Treatment and Disposal)

Section cross-reference(s): 47, 55

IT 760961-81-7 760961-82-8 760961-83-9 760961-85-1 760961-86-2

760961-88-4 760961-90-8 760961-92-0 760961-93-1 760961-94-2

760961-96-4 760961-97-5 760961-99-7 760962-01-4 760962-02-5

760962-05-8 760977-35-3

RL: DEV (Device component use); USES (Uses)

(high-Cr cast iron having high resistance to heat, corrosion, and wear for incinerator and stoker furnace)

L25 ANSWER 6 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:411814 HCAPLUS Full-text

DOCUMENT NUMBER: 140:410196

TITLE: Martensitic heat-resistant iron alloy and its manufacture by normalizing

INVENTOR(S): Yoshizawa, Mitsuru; Igarashi, Masaaki

PATENT ASSIGNEE(S): Sumitomo Metal Industries Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004143513	A	20040520	JP 2002-308705	200210 23
JP 3969279	B2	20070905		
PRIORITY APPLN. INFO.:			JP 2002-308705	200210 23

AB The claimed Fe alloy contains C ≤0.01, Cr >10 and ≤15, Si 0.025-1, Mn 0.05-5, Mo ≤5, W 5-15, B 0.0005-0.03, sol.Al 0.001-0.2, and Co ≤15, Ni ≤15, and/or Cu ≤5, and impurities containing P ≤0.05 and S ≤0.02 weight% by satisfying Cr + 6Si + 4Mo + 1.5W + 12Al - 4Ni - 2Mn - Cu - 2Co ≤15 (the element symbols indicate their percent contents). Alternatively, the Fe alloy contains C 0.005-0.02, Cr >10 and ≤15, Si 0.025-1, Mn 0.05-5, Mo ≤5, W 5-15, B 0.0005-0.03, sol.Al 0.001-0.2, Nb 0.01-0.15, and Co ≤15, Ni ≤15, and/or Cu ≤5, and

impurities containing P  $\leq 0.05$  and S  $\leq 0.02$  weight% by satisfying Cr + 6Si + 4Mo + 1.5W + 12Al + 5Nb - 4Ni - 2Mn - Cu - 2Co  $\leq 15$ . Optionally, the Fe alloy contains Ta  $\leq 0.15$ , Ti  $\leq 0.1$ , and/or Nd  $\leq 0.05$  weight% by satisfying Cr + 6Si + 4Mo + 1.5W + 12Al + 5Nb + 8Ti - 4Ni - 2Mn - Cu - 2Co  $\leq 15$ . The Fe alloy may further contain Ca  $\leq 0.02$ , Mg  $\leq 0.02$ , La  $\leq 0.2$ , Ce  $\leq 0.2$ , Y  $\leq 0.2$ , and/or Hf  $\leq 0.2$  weight%. The claimed process comprises hot working the above Fe alloy and then normalizing at 1050-1200°. The Fe alloy provides high creep strength at high temperature for long time and resistance to steam oxidation

IT 688064-38-2

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(martensitic heat-resistant iron-chromium-tungsten alloy manufactured by normalizing)

RN 688064-38-2 HCAPLUS

CN Iron alloy, base, Fe 22-85, Cr 10-15, W 5-15, Co 0-15, Ni 0-15, Cu 0-5, Mn 0-5, Mo 0-5, Si 0-1, Al 0-0.2, Ce 0-0.2, Hf 0-0.2, La 0-0.2, Nb 0-0.2, Ta 0-0.2, Y 0-0.2, C 0-0.1, Ti 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Fe	22 - 85	7439-89-6
Cr	10 - 15	7440-47-3
W	5 - 15	7440-33-7
Co	0 - 15	7440-48-4
Ni	0 - 15	7440-02-0
Cu	0 - 5	7440-50-8
Mn	0 - 5	7439-96-5
Mo	0 - 5	7439-98-7
Si	0 - 1	7440-21-3
Al	0 - 0.2	7429-90-5
Ce	0 - 0.2	7440-45-1
Hf	0 - 0.2	7440-58-6
La	0 - 0.2	7439-91-0
Nb	0 - 0.2	7440-03-1
Ta	0 - 0.2	7440-25-7
Y	0 - 0.2	7440-65-5
C	0 - 0.1	7440-44-0
Ti	0 - 0.1	7440-32-6

IC ICM C22C038-00

ICS C21D006-00; C22C038-58

CC 55-5 (Ferrous Metals and Alloys)

IT 688064-15-5 688064-16-6 688064-17-7 688064-18-8 688064-19-9  
 688064-20-2 688064-21-3 688064-22-4 688064-23-5 688064-24-6  
 688064-25-7 688064-26-8 688064-27-9 688064-28-0 688064-29-1  
 688064-30-4 688064-31-5 688064-32-6 688064-33-7 688064-34-8  
 688064-35-9 688064-36-0 688064-38-2

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(martensitic heat-resistant iron-chromium-tungsten alloy manufactured by normalizing)

L25 ANSWER 7 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:411808 HCAPLUS Full-text

DOCUMENT NUMBER: 140:410237

TITLE: Thick steel material having high resistance to

fatigue crack propagation and its manufacture  
for welding structure

INVENTOR(S): Hasegawa, Toshinaga; Minagawa, Masanori;  
Shirahata, Hiroyuki

PATENT ASSIGNEE(S): Nippon Steel Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 25 pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004143504	A	20040520	JP 2002-308402	200210 23
JP 3785392	B2	20060614		
PRIORITY APPLN. INFO.:			JP 2002-308402	200210 23

AB The claimed steel material contains C 0.04-0.3, Si 0.01-2, Mn 0.1-3, Al 0.001-0.1, N 0.001-0.01, P  $\leq 0.02$ , and S  $\leq 0.01$  weight% and has dual phase structure consisting of soft phase and network hard secondary phase surrounding the soft phase by satisfying (1) the soft phase contains ferrite, tempered bainite, and/or tempered martensite and has average Vickers hardness  $\leq 150$ , (2) the hard phase contains bainite, martensite, tempered bainite, and/or tempered martensite and has average Vickers hardness  $\geq 250$ , and (3) occupancy of the hard phase (PH) in grain boundary phase is  $PH \geq 0.5$ ; where  $PH = (\text{total length of grain boundary occupied by the hard phase in observed cross section of grain boundary phase}) / (\text{total length of grain boundary in observed cross section})$ . Optionally, the steel contains Ni 0.01-6, Cu 0.01-1.5, Cr 0.01-2, Mo 0.01-2, W 0.01-2, Ti 0.003-0.1, V 0.005-0.5, Nb 0.003-0.2, Zr 0.003-0.1, Ta 0.005-0.2, and/or B 0.0002-0.005 and/or (2) Mg 0.0001-0.01, Ca 0.0005-0.01, Y 0.0001-0.1, La 0.005-0.1, and/or Ce 0.005-0.1 weight%. The steel material is manufactured from a steel slab having the above composition by diffusion heat treating at 1200-1350° for 2-100 h before hot rolling, hot rolling at  $\geq Ac_3$  point and  $\leq 1250^\circ$ , accelerated cooling from  $\geq Ar_3$  point to  $\leq 400^\circ$  at 5-100°/s, and further accelerated cooling from (Ac1 point + 30°) to (Ac3 point - 10°) and  $\leq 400^\circ$  at 5-100°/s for dual-phase region heat treatment.

IT 688737-26-0

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(thick steel material having soft/hard dual phase manufactured by hot rolling and heat treatment for resistance to fatigue crack propagation)

RN 688737-26-0 HCAPLUS

CN Iron alloy, base, Fe 80-100, Ni 0-6, Mn 0.1-3, Cr 0-2, Mo 0-2, Si 0-2, W 0-2, Cu 0-1.5, V 0-0.5, C 0-0.3, Nb 0-0.2, Ta 0-0.2, Al 0-0.1, Ce 0-0.1, La 0-0.1, Ti 0-0.1, Y 0-0.1, Zr 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	80 - 100	7439-89-6
Ni	0 - 6	7440-02-0

Mn	0.1	-	3	7439-96-5
Cr	0	-	2	7440-47-3
Mo	0	-	2	7439-98-7
Si	0	-	2	7440-21-3
W	0	-	2	7440-33-7
Cu	0	-	1.5	7440-50-8
V	0	-	0.5	7440-62-2
C	0	-	0.3	7440-44-0
Nb	0	-	0.2	7440-03-1
Ta	0	-	0.2	7440-25-7
Al	0	-	0.1	7429-90-5
Ce	0	-	0.1	7440-45-1
La	0	-	0.1	7439-91-0
Ti	0	-	0.1	7440-32-6
Y	0	-	0.1	7440-65-5
Zr	0	-	0.1	7440-67-7

IC ICM C22C038-00  
ICS C21D008-02; C22C038-06; C22C038-58

CC 55-11 (Ferrous Metals and Alloys)

IT 12730-76-6, processes 71836-95-8, Steel, Fe 98, Mn 1.6, C 0.2, Si 0.2, processes 73333-30-9, processes 110588-35-7, processes 216969-32-3, processes 688737-21-5, processes 688737-22-6, 688737-23-7, processes 688737-24-8, processes 688737-25-9, processes 688737-26-0

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(thick steel material having soft/hard dual phase manufactured by hot rolling and heat treatment for resistance to fatigue crack propagation)

L25 ANSWER 8 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:711724 HCAPLUS Full-text

DOCUMENT NUMBER: 139:233484

TITLE: Manufacture of high-tensile-strength steel having high toughness and ductility for welding structure

INVENTOR(S): Hasegawa, Toshinaga; Minagawa, Masaki; Shirahata, Hiroyuki

PATENT ASSIGNEE(S): Nippon Steel Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp. CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2003253331	A	20030910	JP 2002-58985	20020305
PRIORITY APPLN. INFO.:			JP 2002-58985	20020305

AB The title steel is manufactured from a slab containing C 0.01-0.2, Si 0.01-1, Mn 0.1-2, Al 0.001-0.1, N 0.001-0.01, P ≤0.02, and S ≤0.01 weight% and having

C equivalent (Ceq.) 0.3-0.6, where Ceq. = C + Mn/6 + (Cu + Ni)/15 + (V + Mo + Cr)/5 (the element symbols indicate their percent contents), by following steps; heating to  $\geq$ Ac3 point and  $\leq$ 1300°; hot rolling at starting temperature  $\leq$ 950°, finish temperature  $\geq$ Ar3 point, and total draft  $\geq$ 30% containing austenite nonrecrystn. rolling; accelerated cooling at 3-100°/s from  $\geq$ Ar3 point to temperature showing austenite ratio 20-70%; and then keeping temperature at the accelerated cooling finish  $\pm$  100° for 10-100 s after the cooling finish by heating, keeping, and/or cooling at  $\leq$ 0.5°/s. The steel may contain (1) Ni 0.01-5, Cu 0.01-1.5, Cr 0.01-2, Mo 0.01-2, W 0.01-2, Ti 0.003-0.1, V 0.005-0.5, Nb 0.003-0.1, Ta 0.005-0.2, and/or B 0.0002-0.005 and/or (2) Mg 0.0005-0.01, Ca 0.0005-0.01, Y 0.005-0.1, La 0.001-0.1, and/or Ce 0.001-0.1 weight%.

IT 594816-51-0

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(rolling and cooling in manufacture of high-tensile-strength steel having toughness and ductility for welding structure)

RN 594816-51-0 HCAPLUS

CN Iron alloy, base, Fe 83-100, Ni 0-5, Mn 0.1-2, Cr 0-2, Mo 0-2, W 0-2, Cu 0-1.5, Si 0-1, V 0-0.5, C 0-0.2, Ta 0-0.2, Al 0-0.1, Ce 0-0.1, La 0-0.1, Nb 0-0.1, Ti 0-0.1, Y 0-0.1, Zr 0-0.1 (9CI) (CA INDEX NAME)

Component	Component		Component
	Percent		Registry Number
=====+=====			
Fe	83	- 100	7439-89-6
Ni	0	- 5	7440-02-0
Mn	0.1	- 2	7439-96-5
Cr	0	- 2	7440-47-3
Mo	0	- 2	7439-98-7
W	0	- 2	7440-33-7
Cu	0	- 1.5	7440-50-8
Si	0	- 1	7440-21-3
V	0	- 0.5	7440-62-2
C	0	- 0.2	7440-44-0
Ta	0	- 0.2	7440-25-7
Al	0	- 0.1	7429-90-5
Ce	0	- 0.1	7440-45-1
La	0	- 0.1	7439-91-0
Nb	0	- 0.1	7440-03-1
Ti	0	- 0.1	7440-32-6
Y	0	- 0.1	7440-65-5
Zr	0	- 0.1	7440-67-7

IC ICM C21D008-00

ICS B21B003-00; C22C038-00; C22C038-06; C22C038-58

CC 55-11 (Ferrous Metals and Alloys)

IT 12730-76-6, processes 60700-86-9, processes 64513-85-5, processes 69546-36-7, processes 100014-60-6, processes 171972-04-6, processes 594816-46-3, processes 594816-47-4, processes 594816-48-5, processes 594816-49-6, processes 594816-50-9 594816-51-0

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(rolling and cooling in manufacture of high-tensile-strength steel having toughness and ductility for welding structure)



5/23/2008

10/535,602

17

L25 ANSWER 9 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1999:681595 HCAPLUS Full-text  
 DOCUMENT NUMBER: 131:312881  
 TITLE: Precipitation hardened silicon steel for machine parts  
 INVENTOR(S): Shimizu, Takayasu; Shimizu, Yoshiyuki  
 PATENT ASSIGNEE(S): Nippon Silicolloy Kogyo K. K., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11293410	A	19991026	JP 1998-94456	19980407
JP 2954922	B2	19990927		
PRIORITY APPLN. INFO.:			JP 1998-94456	19980407

AB The steel contains C  $\leq 0.10$ , Si 2.0-9.0, Mn 0.05-6.0, Ni 1-24, Cr 6-28, Mo 0.2-4.0, Nb 0.03-2.0, Cu  $\leq 4.0$ , W  $\leq 4.0$ , Co  $\leq 3.0$ , Al  $\leq 1.0$ , Ti  $\leq 2.0$ , V  $\leq 4.0$ , B  $\leq 3.0$ , Ce  $\leq 0.4$ , and La  $\leq 0.4\%$ . The parts of the steel which require hard hardness are heat treated by the process including operations 1-2-3 described below. The parts of the steel which do not require hard hardness are heat treated by the process including operations 1-3 or 1-2. (1) Heating to 900-1100°, rapid cooling, and aging at 600-700°. (2) Heating to 950-1150° and rapid cooling. (3) Aging at 400-600°. The precipitation hardened steel has good mech. properties and is suitable for various machine parts.

IT 247938-24-5  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
 (precipitation hardened silicon steel manufactured by controlled heat treatment for machine parts)

RN 247938-24-5 HCAPLUS

CN Iron alloy, base, Fe 5.1-91, Cr 6-28, Ni 1-24, Si 2-9, Mn 0-6, Mo 0.2-4, Cu 0-4, V 0-4, W 0-4, B 0-3, Co 0-3, Nb 0-2, Ti 0-2, Al 0-1, Ce 0-0.4, La 0-0.4, C 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	5.1 - 91	7439-89-6
Cr	6 - 28	7440-47-3
Ni	1 - 24	7440-02-0
Si	2 - 9	7440-21-3
Mn	0 - 6	7439-96-5
Mo	0.2 - 4	7439-98-7
Cu	0 - 4	7440-50-8
V	0 - 4	7440-62-2
W	0 - 4	7440-33-7
B	0 - 3	7440-42-8
Co	0 - 3	7440-48-4

Nb	0	-	2	7440-03-1
Ti	0	-	2	7440-32-6
Al	0	-	1	7429-90-5
Ce	0	-	0.4	7440-45-1
La	0	-	0.4	7439-91-0
C	0	-	0.1	7440-44-0

IC ICM C22C038-00  
ICS C21D001-10; C21D001-42; C21D009-00; C22C038-58; C21D009-28;  
C21D009-38

CC 55-3 (Ferrous Metals and Alloys)

IT 247938-12-1 247938-13-2 247938-14-3 247938-15-4 247938-16-5  
247938-17-6 247938-18-7 247938-19-8 247938-20-1 247938-21-2  
247938-22-3 247938-23-4 247938-24-5

RL: PEP (Physical, engineering or chemical process); PRP  
(Properties); TEM (Technical or engineered material use); PROC  
(Process); USES (Uses)  
(precipitation hardened silicon steel manufactured by controlled heat  
treatment for machine parts)

L25 ANSWER 10 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1997:809869 HCAPLUS Full-text

DOCUMENT NUMBER: 128:117874

TITLE: Austenitic stainless steel for heat exchangers  
having high corrosion resistance at high  
temperature

INVENTOR(S): Kimura, Hideto; Suwa, Minoru

PATENT ASSIGNEE(S): Nippon Kokan Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 09324246	A	19971216	JP 1996-189300	199607 18
PRIORITY APPLN. INFO.:			JP 1996-82716	A 199604 04

AB The steel contains C ≤0.12, Si ≤1.0, Mn ≤5.0, P ≤0.04, S ≤0.03, Cr 14-22, Ni 10-25, Al 1.0-3.5, N ≤0.02, Y + La + Ce ≤0.07% and optionally Ti 0.05-0.5, V 0.1-1.0, Nb 0.1-1.0, Zr 0.1-1.0, and Cu 0.5-4.0%. The components of steel satisfy the following conditions: (1.5Si + Cr + 3Al) - (0.5Mn + Ni + 30C + 30N) <9 and C/5 - 12(Zr/91 + Nb/93 + Ti/48 + V/68) ≤0. The steel is suitable for pipes for heat exchangers used in boilers and chemical plants.

IT 201726-99-0  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(austenitic stainless steel for heat exchangers having high  
corrosion resistance at high temperature)

RN 201726-99-0 HCAPLUS

CN Iron alloy, base, Fe 36-74, Ni 10-25, Cr 14-22, Mn 0-5, Cu 0.5-4, Al 1-3.5, Nb 0.1-1, V 0.1-1, Zr 0.1-1, Si 0-1, Ti 0-0.5, C 0-0.1, Ce 0-0.1, La 0-0.1, Y 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+	=====+	=====
Fe	36 - 74	7439-89-6
Ni	10 - 25	7440-02-0
Cr	14 - 22	7440-47-3
Mn	0 - 5	7439-96-5
Cu	0.5 - 4	7440-50-8
Al	1 - 3.5	7429-90-5
Nb	0.1 - 1	7440-03-1
V	0.1 - 1	7440-62-2
Zr	0.1 - 1	7440-67-7
Si	0 - 1	7440-21-3
Ti	0 - 0.5	7440-32-6
C	0 - 0.1	7440-44-0
Ce	0 - 0.1	7440-45-1
La	0 - 0.1	7439-91-0
Y	0 - 0.1	7440-65-5

IC ICM C22C038-00  
ICS C22C038-50; C22C038-58; F28F021-08  
CC 55-3 (Ferrous Metals and Alloys)

IT 201726-74-1 201726-75-2 201726-76-3 201726-77-4 201726-78-5  
201726-79-6 201726-80-9 201726-81-0 201726-82-1 201726-83-2  
201726-84-3 201726-85-4 201726-86-5 201726-87-6 201726-88-7  
201726-89-8 201726-90-1 201726-91-2 201726-92-3 201726-93-4  
201726-94-5 201726-95-6 201726-96-7 201726-97-8 201726-98-9  
201726-99-0

RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(austenitic stainless steel for heat exchangers having high  
corrosion resistance at high temperature)

L25 ANSWER 11 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1995:874763 HCAPLUS Full-text

DOCUMENT NUMBER: 123:262801

ORIGINAL REFERENCE NO.: 123:46889a, 46892a

TITLE: Spring steel of high strength and high corrosion  
resistance

INVENTOR(S): Kawaguchi, Yasunobu; Shimotsusa, Masataka;  
Momozaki, Kan; Nakayama, Takenori; Miyauchi,  
Shigeaki; Yamamoto, Yoshinori; Ohkouchi, Norio

PATENT ASSIGNEE(S): Kabushiki Kaisha Kobe Seiko Sho, Japan

SOURCE: Can. Pat. Appl., 51 pp.

CODEN: CPXXEB

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CA 2135035	A1	19950505	CA 1994-2135035	199411 03
CA 2135035	C	19990720		
JP 07173577	A	19950711	JP 1994-203719	199408 29

JP 2932943	B2	19990809	
EP 657557	A1	19950614	EP 1994-117353
			19941103
EP 657557	B1	19980513	
R: DE, ES, FR			
US 5508002	A	19960416	US 1994-335346
			19941103
ES 2116506	T3	19980716	ES 1994-117353
			19941103
US 5846344	A	19981208	US 1996-592546
			19960126
PRIORITY APPLN. INFO.:		JP 1993-275514	A 19931104
		JP 1994-203719	A 19940829
		US 1994-335346	A1 19941103

AB The steel contains C 0.3-0.6, Si 1.0-3.0, Mn 0.1-0.5, Cr 0.5-1.5, and Ni >0-1.0 and/or Mo 0.1-0.5% with  $Q = (0.23C + 0.1)(0.7Si + 1)(3.5Mn + 1)(2.2Cr + 1)(0.4Ni + 1)(3Mo + 1) = 2.5-4.5$  and  $Q/\log d = 2.0-4.0$ , where d is diameter (mm) of the steel bar or wire after hot rolling. The steel further contains Cu 0.1-1.0; V 0.01-0.5, Nb 0.01-1.0, Al 0.01-1.0, and/or Ti 0.01-1.0; Co 0.1-3.0 and/or W 0.1-1.0; and Ca 0.001-0.1, La 0.001-1.0, and Ce 0.001-1.0%. The rolling starting temperature on hot rolling of the steel is 850-1050°, the cooling starting temperature after hot rolling T = 700-900°, and the average cooling rate from T to 500° is 0.5-3.0°/s.

IT 169312-37-2

RL: TEM (Technical or engineered material use); USES (Uses)  
(spring steel of high strength and high corrosion resistance)

RN 169312-37-2 HCAPLUS

CN Iron alloy, base, Fe 82-98, Si 1-3, Co 0.1-3, Cr 0.5-1.5, Cu 0.1-1, W 0.1-1, Al 0-1, Ce 0-1, La 0-1, Nb 0-1, Ni 0-1, Ti 0-1, C 0.3-0.6, Mn 0.1-0.5, Mo 0.1-0.5, V 0-0.5, Ca 0-0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	82 - 98	7439-89-6
Si	1 - 3	7440-21-3
Co	0.1 - 3	7440-48-4
Cr	0.5 - 1.5	7440-47-3
Cu	0.1 - 1	7440-50-8
W	0.1 - 1	7440-33-7
Al	0 - 1	7429-90-5
Ce	0 - 1	7440-45-1
La	0 - 1	7439-91-0
Nb	0 - 1	7440-03-1
Ni	0 - 1	7440-02-0
Ti	0 - 1	7440-32-6
C	0.3 - 0.6	7440-44-0

Mn	0.1 -	0.5	7439-96-5
Mo	0.1 -	0.5	7439-98-7
V	0 -	0.5	7440-62-2
Ca	0 -	0.1	7440-70-2

IC ICM C22C038-22  
 ICS C22C038-44; C22C038-34  
 CC 55-3 (Ferrous Metals and Alloys)  
 IT 169312-37-2  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (spring steel of high strength and high corrosion resistance)

L25 ANSWER 12 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1992:218993 HCAPLUS Full-text  
 DOCUMENT NUMBER: 116:218993  
 ORIGINAL REFERENCE NO.: 116:37033a,37036a  
 TITLE: High-strength weldable steel for coldworking  
 INVENTOR(S): Simon, Arpad; Bachorik, Ludovit; Zoricak,  
 Miroslav  
 PATENT ASSIGNEE(S): Czech.  
 SOURCE: Czech., 2 pp.  
 CODEN: CZXXA9  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Slovak  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CS 270858	B1	19900814	CS 1987-4976	198707 02
PRIORITY APPLN. INFO.:			CS 1987-4976	198707 02

AB The steels manufactured by vacuum refining contain Mn 1.25-1.8 and B 0.0005-0.005% in addition to C 0.01-0.12, Si and Cr ≤0.5 each, P ≤0.035, S 0.001-0.03, Zr 0.05-0.2 (at Mn/Zr ratio of 9-36), Al ≤0.1, Mo ≤0.6, Cu ≤0.3, Ni ≤1, and Nb, Ti, V, Ce, and/or La ≤0.45%. The steel can be rapidly cooled in hot rolling to promote transformation of austenite to acicular ferrite. The resulting steel strip shows good mech. properties, and can be cold worked immediately after hot rolling. Thus, the hot-rolled strip (containing C 0.006, Mn 1.5, Si 0.32, P 0.017, S 0.012, Al 0.054, Ti 0.006, Zr 0.098, Nb 0.037, Mo 0.234, B 0.002, Cr 0.021, Cu 0.077, and Ni 0.045%) showed yield strength of 732 MPa, tensile strength 840 MPa, elongation 18.3%, and notched impact toughness of 112 J/cm2.

IT 141092-02-6  
 RL: USES (Uses)  
 (ferritic strip, for cold forming after hot rolling)  
 RN 141092-02-6 HCAPLUS  
 CN Iron alloy, base, Fe 93-99, Mn 1.2-1.8, Ni 0-1, Mo 0-0.6, Cr 0-0.5, Si 0-0.5, Ce 0-0.4, La 0-0.4, Nb 0-0.4, Ti 0-0.4, V 0-0.4, Cu 0-0.3, Zr 0-0.2, Al 0-0.1, C 0-0.1 (9CI) (CA INDEX NAME)

Component	Component	Component
	Percent	Registry Number
=====+	=====+	=====

Fe	93	-	99	7439-89-6
Mn	1.2	-	1.8	7439-96-5
Ni	0	-	1	7440-02-0
Mo	0	-	0.6	7439-98-7
Cr	0	-	0.5	7440-47-3
Si	0	-	0.5	7440-21-3
Ce	0	-	0.4	7440-45-1
La	0	-	0.4	7439-91-0
Nb	0	-	0.4	7440-03-1
Ti	0	-	0.4	7440-32-6
V	0	-	0.4	7440-62-2
Cu	0	-	0.3	7440-50-8
Zr	0	-	0.2	7440-67-7
Al	0	-	0.1	7429-90-5
C	0	-	0.1	7440-44-0

IC ICM C22C038-00

CC 55-3 (Ferrous Metals and Alloys)

IT 141092-02-6 141092-03-7, Aluminum 0.1, carbon 0.1, copper 0.1, iron 98, manganese 1.5, molybdenum 0.2, silicon 0.3, zirconium 0.1, uses

RL: USES (Uses)

(ferritic strip, for cold forming after hot rolling)

L25 ANSWER 13 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1972:409055 HCAPLUS Full-text

DOCUMENT NUMBER: 77:9055

ORIGINAL REFERENCE NO.: 77:1543a,1546a

TITLE: Nickel-based alloy

INVENTOR(S): Borisov, V. A.; Karlov, S. V.; Shpitsberg, A. L.; Khatuntseva, L. M.; Skakov, Yu. A.; Zhuchin, V. N.

SOURCE: U.S.S.R. From: Otkrytiya, Izobret., Prom. Obraztsy, Tovarnye Znaki 1972, 49(4), 87-8.

CODEN: URXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Russian

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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SU 326238		19720119	SU	
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196910  
03

AB A Ni-base alloy used for spring sensing elements contained: Cr 16-25, W 6-16, Co 4.5-10, Al 0.8-2.5, Ti 2.0-5.0, B 0.008-0.25, Fe 10-24, Nb 0.8-2.5, C ≤ 0.05, S ≤ 0.02, P ≤ 0.02, Mn ≤ 0.8, Si ≤ 0.5, Ce ≤ 0.1, Cu 0.5-2.5, V 0.1-1.0, La 0.01-1.0, Y 0.01-1, Zr 0.05-0.5%, and the rest Ni. The components, such as Fe, Nb, Cu, V, La, Y, and Zr, were added to improve the mech. and tech. properties of the alloy.

IT 12779-29-2

RL: USES (Uses)

(for springs)

RN 12779-29-2 HCAPLUS

CN Nickel alloy, base, Ni 13-60, Cr 16-25, Fe 10-24, W 6-16, Co 4.5-10, Ti 2-5, Al 0.8-2.5, Nb 0.8-2.5, Cu 0.5-2.5, V 0.1-1, La 0-1, Y 0-1, Mn 0-0.8, Si 0-0.5, Zr 0-0.5, B 0-0.2, Ce 0-0.1 (9CI) (CA INDEX NAME)

5/23/2008

10/535,602

23

Component	Component Percent	Component Registry Number
Ni	13 - 60	7440-02-0
Cr	16 - 25	7440-47-3
Fe	10 - 24	7439-89-6
W	6 - 16	7440-33-7
Co	4.5 - 10	7440-48-4
Ti	2 - 5	7440-32-6
Al	0.8 - 2.5	7429-90-5
Nb	0.8 - 2.5	7440-03-1
Cu	0.5 - 2.5	7440-50-8
V	0.1 - 1	7440-62-2
La	0 - 1	7439-91-0
Y	0 - 1	7440-65-5
Mn	0 - 0.8	7439-96-5
Si	0 - 0.5	7440-21-3
Zr	0 - 0.5	7440-67-7
B	0 - 0.2	7440-42-8
Ce	0 - 0.1	7440-45-1

IC C22C

CC 56-2 (Nonferrous Metals and Alloys)

IT 12779-29-2

RL: USES (Uses)

(for springs)

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